

demand as ever among those who can afford them ; third, the chemical products, being produced at a far lower cost, have enabled the perfumer, the confectioner, the soap-maker, to reach an entirely new clientele — the poor. There is one further point of interest — the laboratory's ultimate dependence on the land in the matter of perfumes — for in the majority of cases it is from plant substances, not coal tar, that the synthetic products are made.

Lastly comes the art of perfumery proper, for which these various products, natural and synthetic, furnish the raw materials — an art in which the Frenchman excels. The perfumer is a musician who from many notes (rose, violet, orange-blossom, etc.) strikes a harmonious chord of scent — for a scent is obtained only by the most artful combination of odors, each of which must be absolutely pure, the slightest impurity striking a jarring note to the trained nostril. The composition of the perfume of violet, for instance, is as follows: essence of violet, natural vanilla, tincture of orris-root, a touch of vetiver, essence of violet leaves, and artificial ionine.

One striking fact remains — that the enterprising American people, with their almost unbounded natural advantages and their protective tariff, have never entered into rivalry with the people of Grasse. To-day the total production of essential oils in the United States (150,000 pounds of peppermint oil, and small quantities of oil of wormwood, wintergreen, witchhazel, and spruce oil) does not exceed \$500,000, about one twelfth of that produced by the one little town in France.

A PECULIAR HABITAT FOR CAMPTOSORUS *

BY RALPH CURTISS BENEDICT

The following note and photograph shown in the figure were recently sent to Dr. Britton, and he has turned them over to me to record.

“ . . . Arthur Leeds of Phila. and I found two gum trees in the Blackwater River, Virginia, near Waverley, adorned with large colonies of *Camptosorus*. These trees were standing closer than ten feet ; and the closest search subsequently failed to

* Illustrated with the aid of the Catherine McManes fund.



The walking fern as epiphyte.

reveal other colonies on the whole six day canoe trip. Thinking this location and the fact just mentioned somewhat unusual, we thought thee would be interested to have a specimen, and the excellent photograph contributed by my friend E. S. Cary. . . ."

Alfred S. Haines, Westtown, Pa.

The habitat is indeed interesting, showing as it does the walking fern in the unusual role of an epiphyte. One ordinarily associates this species with rocky situations, and it probably reaches its best development in such regions ; but even there it is not a rock lover in the same sense as *Asplenium Trichomanes* or the genera *Pellaea* and *Woodsia*. Scattered plants often do grow along the ledges but the best growths are down below where some old moss-covered log or rock furnishes root-protection and opportunity for the leaf tips to develop new plants. The gum tree in the picture with its covering of moss or liverwort seems to have furnished the required conditions, but the origin of the colony — how it got there and whence it came — is not so easy to explain.

NEW YORK BOTANICAL GARDEN

REVIEWS

Clute's Laboratory Botany*

In this manual the author has arranged a course to cover a year's work in botany for the high school. Part I deals with the structure and life processes of angiosperms ; part II, with the structure and evolution of the plant kingdom. A list of physiological experiments is appended at the end of the book.

While the order in which the studies are arranged conforms to the plan adopted in the usual botanical text-books, the manual allows considerable flexibility in the treatment of topics as regards time of year, subject matter, and local conditions. For example, instead of beginning with the usual topics, cells or seeds, the study of trees may be taken up and provision is made by incorporating in the manual a handy key to the common broad-leaved and evergreen trees ; parts I and II may be transposed ; the physiological experiments may be performed apart from the work on morphology or they may be considered in connection with it.

* Clute, Willard N. Laboratory Botany. Pp. 172. 1909. Ginn and Co.